A Check List For Catching Format Errors,
in Writing Model Results for Case 4 --
for use in updating output code **and** in inspecting data generated.

This checklist only contains the most common errors of all participants in Case 3, and tigher requirements new to Case 4. It is meant for those participants whose Case3 results were very nearly conforming to the requirements then (having made 1 or 2 errors at most, for which correction has been made).

Other people (including new participants and participants who promised to change their output code to improve its conformance) are urged to read the new Document for Case 4 carefully, before using this checklist.

(**) marks what's new in Case 4.
(*) marks an aspect in which errors are common, and their correction time-consuming.

The vertical-profile or ".p" files –

1. The **number of time steps** (nt) should be as required for the sub-period simulated. (See Case 4 Document, Section 2.2.)
2. **(*) Format overflow** errors on the "***max,min***" line should be checked, and corrected if detected.
3. **(*)** The correct **priority of subscripts** for writing data array must be used. It should be (it,ip) with 'it' moving faster.
4. **If your model simulates on constant pressure levels**, the constant pressure profile should appear as **the vertical coordinate variable (in mb)** in each of the .p files, including the .p1 (height) file, which is required of this type of model. A .p0 (pressure data) file should not be submitted.
5. **If your model simulates on constant height levels**, the constant height profile should appear as **the vertical coordinate variable (in km)** in each of the .p files, including the .p0 (pressure) file, which is required of this type of model. A .p1 (height data) file should not be submitted.
6. **If your model simulated on sigma levels,** constant pressure upper levels and the sub-period pressure averages for sigma levels should appear as **the vertical coordinate variable (in mb)** in each of the .p files, including the .p0 (pressure) and the .p1 (height) file, which are both required of this type of model.
7. **(*)** Time coordinate values are elapsed times in hours from the initiation time for the sub-period simulated.

Features new to **(**)** CRM participants of Case 3 who followed its CRM document.

11. The **numbering has changed** for all vertical-profile or ".p" variable files (except .p0) **that were solicited in Case 3 CRM document**. Those previously numbered .p1 through .p9 and .p30 now should have their numbers incremented by one; and .p25 and .p26 should be decremented by two, as .p23 and .p24. The new .p25 is to contain Net cloud mass flux.

12. In addition, for Case 4 **new data fields** are called for, as numbered between .p26 and .p30 (if any is specified) and .p32 and thereafter.

The time-series or ".t" files –

1. **(**)** There should be 4 header lines: (1) the filename-&-comment line; (2) line containing the number of time steps (an integer); (3) the "maxes" line, starting with a dummy time value (0000.0) followed by the maximum values of the time-series variables, all written in the same order and format as these variables appear on the content data lines; and (4) the "mins" lines, starting with a dummy time value (9999.9) followed by the minimum values.
2. On Line 2 **(**)**, the **number of time steps** (nt) should be as required for the sub-period simulated. (See Case 4 Document, Section 2.2.)
3. **(*) (**)** Data overflowed their formats on the "maxes" line or the "mins" line for one or more fields.
4. Time coordinate values are elapsed time in hours from the initiation time for the sub-period simulated.
5. **(*)** Wrong signature values for "Not Generated" (such as 0.00 or 0.e+1) were used. Please do not use zeros, for obvious reasons. Use instead all 8's to fill out the data field for the variable position, as specified in the Case document.
6. As for Case 3, data fields delimited properly with blank(s) will be accepted. Some participants may see it as preferable, if none of the elemental formats has a precision problem.

Features new to **(**)** CRM participants of Case 3 who followed its CRM document.

11. The time-series variables you wrote in .t1 file for Case 3, in compliance with Krueger's document, must be broken up in two contiguous sets, and written out to the new .t2 and .t3 files separately, in the manner explained below (#12). In addition to these data, these latter files must also contain new time-series variables you have not submitted before. (See Case 4 Document.)

12. In the new .t2 file, variables in columns 8-13 must take up values -- from your old .t1 file – in the latter's columns 2-7, respectively. In the new .t3 file, variables in columns 5-7 must take up values – also from the old .t1 file – in its columns 8-10.

13. The new .t1 in Case 4 is to contain variables you have not submitted previously. (See Case 4 Document.)

Thanks for helping with the accuracy of data analysis.